CLAIMS

1. An apparatus comprising:

a substrate;

a first layer disposed adjacent the substrate;

a second layer disposed adjacent the first layer;

a third layer disposed adjacent the second layer, wherein the third layer contains a gap; and

a fuse disposed between the third layer and the first layer, wherein the fuse is electrically coupled to the third layer, and wherein the fuse is located proximate the gap in the third layer.

2. An apparatus as recited in claim 1, wherein the fuse is a programmable fuse.

3. An apparatus as recited in claim 1, wherein the fuse is composed of polysilicon doped with phosphorous.

4. An apparatus as recited in claim 1, wherein the fuse is composed of tantalum aluminum.

5. An apparatus as recited in claim 1, wherein the fuse is composed of WSiN.

6. An apparatus as recited in claim 1, further comprising:

a dielectric layer disposed adjacent the third layer; and

a barrier layer disposed adjacent the dielectric layer.

7. An apparatus as recited in claim 1, wherein the third layer is composed of aluminum.

8. An apparatus as recited in claim 1, wherein the fuse provides an electrically conductive path across the gap in the third layer.

9. An apparatus as recited in claim 1, wherein electrical conductivity of the fuse can be substantially eliminated by applying a voltage across the fuse for a predetermined time period.

10. An apparatus comprising:

a substrate;

a thermal isolation layer disposed adjacent the substrate;

a first dielectric layer disposed adjacent the thermal isolation layer;

a metal layer disposed adjacent the first dielectric layer;

a fuse disposed in the first dielectric layer and electrically coupled to the metal layer;

a second dielectric layer disposed adjacent the metal layer; and

a barrier layer disposed adjacent the second dielectric layer.

11. An apparatus as recited in claim 10, wherein the metal layer contains a gap proximate the fuse and wherein the gap is filled with material from the second dielectric layer.

12. An apparatus as recited in claim 10, wherein the metal layer contains a gap proximate the fuse and wherein the fuse provides an electrically conductive path across the gap.

13. An apparatus as recited in claim 10, wherein the second dielectric layer includes a layer of a first dielectric material and a layer of a second dielectric material.

14. An apparatus as recited in claim 10, wherein the barrier layer prevents fluid from contacting the second dielectric layer.

15. An apparatus as recited in claim 10, wherein the fuse is composed of polysilicon doped with phosphorous.

16. An apparatus as recited in claim 10, wherein the fuse is a programmable fuse composed of tantalum aluminum.

17. An apparatus as recited in claim 10, wherein the fuse is a programmable fuse composed of WSiN.

18. An apparatus as recited in claim 10, wherein the metal layer is composed of aluminum.

19. A method of generating a fuse structure, the method comprising:

disposing a thermal isolation layer on a substrate;

disposing a first dielectric layer on the thermal isolation layer;

disposing a fuse on the thermal isolation layer, wherein the fuse is separated from the substrate by the thermal isolation layer;

disposing a metal layer on the first dielectric layer wherein the metal layer is electrically coupled to the fuse;

disposing a second dielectric layer on the metal layer;

disposing a barrier layer on the second dielectric layer; and

disposing a nozzle layer on the barrier layer.

20. A method as recited in claim 19, wherein the fuse material is polysilicon doped with phosphorous.

21. A method as recited in claim 19, wherein disposing a metal layer on the first dielectric layer includes forming a gap in the metal layer in an area proximate the fuse.

22. A method as recited in claim 19, wherein disposing a metal layer on the first dielectric layer includes forming a gap in the metal layer in an are proximate the fuse, and wherein the fuse provides an electrically conductive path across the gap.